

Evaluating buyer-supplier relationships in high-tech industry by analytic network process (ANP)

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Abstract

Businesses are becoming extremely competitive these days, and a cooperative buyer-supplier relationship is essential for a manufacturer, especially in technology-related industry, to survive and to acquire reasonable profit. While the research on various types of collaborations between firms is abundant, the works that provide mathematical models for selecting the most appropriate relationship form are rather limited. Thus, the objective of this study is to propose a model to evaluate the forms of buyer-supplier relationship between the manufacturer and its supplier, by applying the analytic network process (ANP) and considering the benefits, opportunities, costs and risks (BOCR) aspects. A case study of an electronic components manufacturer in Taiwan is used to examine the practicality of the model. With the analysis of multiple factors that affect the success of the relationship by incorporating experts' opinions, a performance ranking of the buyer-supplier forms is obtained, and the results shall provide guidance to select the most appropriate form of relationship between the manufacturer and its supplier. The proposed model is easy to be understood and applied by the management. In addition, it can be tailored and applied by firms in various industries that are making decisions on buyer-supplier relationship.

Keyword : buyer-supplier relationship; analytic network process; BOCR; performance evaluation